

The following guidelines should be used when discussing Climate Change in media Interviews:

1. There are a large number of studies showing that human induced global warming has increased the likelihood of extreme events occurring across the planet. We can now say, for example, that when we have a heatwave or drought it is scientifically correct to point to the increase risk of such events due to human activities. So the answer to the question '*Is this event due to climate change?*' can be framed as '*events of this type have been made more likely by climate change*'.
2. The study of attribution of individual weather events has advanced greatly in recent years, to the stage where probabilistic estimates of the increased likelihood due to Climate Change of specific events can be made provided the observational record is long enough, in some cases preliminary estimates can be made in near real time, but no operational attribution is available as present.
3. It is no longer appropriate to state that a single event cannot be attributed to Climate Change but rather framed that the event has a greater probability of occurring due to Climate Change and is more than likely part of the trend of increasing extreme events.
4. The next goal in the scientific attribution sphere is to operationalise the attribution methodologies. MÉ is involved in a European project, EUPHEME, the goal of which is to develop a 'toolbox for attribution studies.'

Improving communication on Climate Change

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The suggestions below for more effective communication are based on many years of experience communicating climate science and the links between climate change and extreme weather. When interacting with the media following an extreme event, these suggestions may help scientists to more effectively and accurately communicate the role of climate change in influencing the event.

1. Lead with what is known. Rather than starting with caveats, uncertainties, and what we cannot say (Somerville and Hassol, 2011), a discussion of attribution of extreme weather should begin with how human-induced climate change is affecting the type of extreme weather at issue. For example, "We know that in a warming world, we experience more frequent and severe heat waves. And we see that trend clearly in the data. This event is part of that trend." Then discuss any studies relating to the specific extreme weather event being discussed, such as those that quantify the altered chances of the event when this information is available from research. For example, "Global warming made this heat wave at least four times more likely to occur, or increased the odds of this event by 400%."
2. Communicate clearly and simply the mechanisms behind the changes brought on by warming. For example, "A warmer atmosphere holds more moisture, leading to heavier rainfall."

3. Use metaphors, which can effectively help explain how human-induced warming changes the odds of extreme weather events. For example, “heat-trapping gases act like steroids in the climate system, increasing the odds of extreme heat, heavy downpours, and some other types of extreme events. We’re now experiencing the weather on steroids.” This communicates that even though extreme events do occur naturally, many types are now happening more frequently and more intensely. Similarly, global warming “is loading the dice toward more rolls of extreme events,” or “is stacking the deck” in favour of such outcomes.
4. When discussing extreme weather events that have not been clearly attributed to climate change by scientific analyses, it is useful to reiterate our basic understanding of human-induced climate change and to decouple that from the attribution of a particular event. Explain that, “we know climate change is happening now, and is human-caused, even if we can’t be certain that it is a direct cause of this particular event.”
5. Reframe poorly posed questions. Scientists being interviewed are often asked, “Did climate change cause this event?” Reasons for asking such a question can relate to liability, context, planning and more. However, it remains a poorly posed question, with no simple yes or no answer, due to the multiple factors involved in all events. Interviewees can reframe their responses to be more appropriate and informative, for example, describing how the probabilities of these types of events are changing as a result of human-induced warming and identifying particular events that are very unlikely to have occurred in the absence of human-caused climate change.
6. Communicate about confidence and uncertainty in language appropriate for the public. Scientists have a lexicon that can be useful for communicating with each other about these issues, but it is important to remember that many words mean entirely different things to scientists than they do to the public (Hassol, 2008; Somerville and Hassol, 2011). For example, scientists often use the word “uncertainty” to discuss the envelope of future climate scenarios, or the range of model results for a particular attribution finding, but to the public, “uncertainty” means we just don’t know. Thus, referring to “a range” is better than calling it “uncertainty.” Similarly, scientists may describe a finding as being “low confidence” for reasons having to do with data or model issues, but this does not mean there is no observed trend or no projected change as the public might assume from this language.
7. As with any public communication about climate change, try to avoid language that can lead to despair and hence inaction. For example, rather than calling further increases in extreme weather “inevitable,” we can discuss the choice we face between a future with more climate change and larger increases in extreme weather, and one with less. The future is in our hands.